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APPENDIX E

SOURCE CONTROL (SC) ALTERNATIVES - COST ESTIMATES AND SUPPORTING INFORMATION

APPENDIX E
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Source Control (SC) Alternatives - Cost Estimates and Supporting Information

APPENDIX E.7 SC-6B: On-Site Ex-Situ Thermal Treatment (0-10 feet bgs Soil) and In-Situ Treatment (>10 feet bgs Soil)

The following figures and calculations found in Appendices E.3, E.4 and E.6 also apply to Alternative SC-6B:

APPENDIX E.1

SC-1: NO ACTION ALTERNATIVE

APPENDIX E.1

SC-1: No Action Alternative

- Table E.1.1 Cost Estimate Summary for Alternative SC-1: No Action
- Table E.1.2 Cost Estimate for Alternative SC-1: No Action

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Table E.1.1
Cost Estimate Summary for
Alternative SC-1: No Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Site:	Beede Waste Oil / Cash Energy Site	**Description:**	No Action Alternative - Includes only routine site inspections and five-year reviews.
Location:	Plaistow, New Hampshire		
Phase:	Feasibility Study		
Date:	December, 2000		

DESCRIPTION	COST	NOTES
CAPITAL COSTS:		
None		
TOTAL CAPITAL COST	$0	
ANNUAL O&M COST:		See Detailed Cost Estimate Sheets
Quarterly Site Inspections	$5,445	
SUBTOTAL	$5,445	
Contingency	$817	5% scope + 10% bid
SUBTOTAL	$6,262	
Project Management	$626	10% of Annual Subtotal incl. Contingency
Technical Support	$626	10% of Annual Subtotal incl. Contingency
TOTAL ANNUAL O&M COST	$7,514	

PERIODIC COSTS:

DESCRIPTION	YEAR	COST	NOTES
Five Year Review / Report	Every 5 years	$20,496	1 report at end of Years 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, and 100.

PRESENT VALUE ANALYSIS

COST TYPE	YEAR	TOTAL COST	TOTAL COST PER YEAR	DISCOUNT FACTOR (7%)	PRESENT VALUE	NOTES
Capital Cost	0	$0	$0	1.000	$0	
Annual O&M Cost	1-100	$751,410	$7,514	14.269	$107,219	
Periodic Cost	5	$20,496	$20,496	0.713	$14,614	
Periodic Cost	10	$20,496	$20,496	0.508	$10,412	
Periodic Cost	15	$20,496	$20,496	0.362	$7,420	
Periodic Cost	20	$20,496	$20,496	0.258	$5,288	
Periodic Cost	25	$20,496	$20,496	0.184	$3,771	
Periodic Cost	30	$20,496	$20,496	0.131	$2,685	
Periodic Cost	35	$20,496	$20,496	0.094	$1,920	
Periodic Cost	40	$20,496	$20,496	0.067	$1,369	
Periodic Cost	45	$20,496	$20,496	0.048	$976	
Periodic Cost	50	$20,496	$20,496	0.034	$695	
Periodic Cost	55	$20,496	$20,496	0.024	$496	
Periodic Cost	60	$20,496	$20,496	0.017	$355	
Periodic Cost	65	$20,496	$20,496	0.012	$252	
Periodic Cost	70	$20,496	$20,496	0.009	$180	
Periodic Cost	75	$20,496	$20,496	0.006	$128	
Periodic Cost	80	$20,496	$20,496	0.004	$91	
Periodic Cost	85	$20,496	$20,496	0.003	$65	
Periodic Cost	90	$20,496	$20,496	0.002	$47	
Periodic Cost	95	$20,496	$20,496	0.002	$33	
Periodic Cost	100	$20,496	$20,496	0.001	$24	
Total Periodic Costs		$409,920			$50,820	
TOTAL COSTS		**$1,161,330**			**$158,039**	

TOTAL PRESENT VALUE OF ALTERNATIVE **$158,039**

Note: Discount rate of 7% consistent with "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 540-R-00-002, OSWER 9355.0-75 (July 2000).

Table E.1.2
Cost Estimate for
Alternative SC-1: No Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Task/Item Description	Quantity	Unit Cost	Units	Cost	Comments/Reference
CAPITAL COSTS					
None					
			TOTAL CAPITAL COSTS	$0	
ANNUAL COSTS					
Quarterly Site Inspections					
Labor					
Quarterly Inspection with Inspection Report (4)	1	$4,950	l.s.	$4,950	Labor cost based on 66 hours at an average rate of $75/hr.
			Subtotal, Labor Costs	$4,950	
Expenses					
Misc. (e.g. mileage. telephone, reproduction, postage, personal protective equipment, etc.)	1	$495	l.s.	$495	Assume 10% of labor cost
			Subtotal, Expenses	$495	
			Subtotal, Quarterly Site Inspections	$5,445	
			Subtotal, Annual Cost	$5,445	
Annual Cost Contingency				$817	5% scope + 10% bid (See Note 2)
			Subtotal, Annual Cost with Contingency	$6,262	
Annual Project Management / Administration				$626	10% (See Note 2)
Annual Technical Support				$626	10% (See Note 2)
			TOTAL ANNUAL COSTS	**$7,514**	
FIVE YEAR ACTIVITIES / REVIEW					
Labor	1	$19,520	l.s.	$19,520	Labor cost based on 244 hours at an average rate of $80/hr.
Expenses	1	$976	l.s.	$976	Assume 5% of report prep. labor
TOTAL, EACH FIVE YEAR ACTIVITIES / REVIEW COSTS				**$20,496**	

Notes:

1. Average labor rate of $75/hr assumes primarily field labor with the following approx. distribution: 5% Project Manager ($105/hr), 90% Project Engineer ($75/hr), and 5% Support ($45/hr); personnel hours for field tasks include oversight/project management and support time, in addition to time for staff in field. Average labor rate of $80/hr assumes primarily office-based labor with the following approx. distribution: 2% Principal ($135/hr), 18% Project Manager ($105/hr), 75% Project Engineer ($75/hr), and 5% Support ($45/hr)

2. Reference: USEPA, "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 540-R-00-002, July 2000.

APPENDIX E.2

SC-2: LIMITED ACTION ALTERNATIVE

APPENDIX E.2

SC-2: Limited Action Alternative

Table E.2.1
Cost Estimate Summary for
Alternative SC-2: Limited Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Site:	Beede Waste Oil / Cash Energy Site	**Description:**	Limited Action Alternative - Includes institutional controls (AURs/deed restrictions) access controls (fencing, soil pile tarps), and surface water/sediment/wetlands monitoring.
Location:	Plaistow, New Hampshire		
Phase:	Feasibility Study		
Date:	December, 2000		

DESCRIPTION	COST	NOTES
CAPITAL COSTS:		See Detailed Cost Estimate Sheets
Submittals / Implementation Plans	$10,000	
Contractor Mobilization / Demobilization	$30,000	
Decommissioning of Existing NTCRA VEE System	$253,092	
Extend / Repair Site Fencing	$70,546	
Post-Decommissioning / Construction Submittals	$10,000	
SUBTOTAL	$373,639	
Contingency	$74,728	10% scope + 10% bid
SUBTOTAL	$448,366	
Project Management	$44,837	10% of Capital Subtotal incl. Contingency
Construction Management	$67,255	15% of Capital Subtotal incl. Contingency
Institutional Controls / AURs		
Establish Deed Restrictions for Parcels I and II, and Landfill	$20,000	
Establish Fishing Restrictions	$5,000	
SUBTOTAL	$25,000	
TOTAL CAPITAL COST	$585,458	
ANNUAL O&M COST:		See Detailed Cost Estimate Sheets
Quarterly Site Inspections	$5,445	
Maintain/Repair Site Fencing	$23,792	
Maintain/Repair Soil Pile Tarpaulins	$4,972	
Annual Surface Water/Wetlands Monitoring (1 Round)	$13,182	
Annual Summary Report	$10,416	
SUBTOTAL	$57,807	
Contingency	$8,671	5% scope + 10% bid
SUBTOTAL	$66,478	
Project Management	$6,648	10% of Annual Subtotal incl. Contingency
Technical Support	$6,648	10% of Annual Subtotal incl. Contingency
TOTAL ANNUAL O&M COST	$79,774	

PERIODIC COSTS:

DESCRIPTION	YEAR	COST	NOTES
Replace Soil Pile Tarpaulins	Every 5 years	$43,983	
Sediment Monitoring (1 Round)	Every 5 years	$26,013	
Five Year Review Report	Every 5 years	$20,496	1 report at end of Years 5, 10, 15, 20, 25, 30, 35, 40,
SUBTOTAL		$90,492	45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, and 100.
Contingency		$18,098	10% scope + 10% bid
SUBTOTAL		$108,591	
Project Management		$10,859	10% of Periodic Subtotal incl. Contingency
Technical Support		$10,859	10% of Periodic Subtotal incl. Contingency
TOTAL EACH 5-YEAR ACTIVITIES/REVIEW		$130,309	

Table E.2.1
Cost Estimate Summary for
Alternative SC-2: Limited Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

PRESENT VALUE ANALYSIS

COST TYPE	YEAR	TOTAL COST	TOTAL COST PER YEAR	DISCOUNT FACTOR (7%)	PRESENT VALUE	NOTES
Capital Cost	0	$585,458	$585,458	1.000	$585,458	
Annual O&M Cost	1-100	$7,977,366	$79,774	14.269	$1,138,290	
Periodic Cost	5	$130,309	$130,309	0.713	$92,910	
Periodic Cost	10	$130,309	$130,309	0.508	$66,197	
Periodic Cost	15	$130,309	$130,309	0.362	$47,172	
Periodic Cost	20	$130,309	$130,309	0.258	$33,620	
Periodic Cost	25	$130,309	$130,309	0.184	$23,977	
Periodic Cost	30	$130,309	$130,309	0.131	$17,070	
Periodic Cost	35	$130,309	$130,309	0.094	$12,210	
Periodic Cost	40	$130,309	$130,309	0.067	$8,705	
Periodic Cost	45	$130,309	$130,309	0.048	$6,203	
Periodic Cost	50	$130,309	$130,309	0.034	$4,417	
Periodic Cost	55	$130,309	$130,309	0.024	$3,153	
Periodic Cost	60	$130,309	$130,309	0.017	$2,254	
Periodic Cost	65	$130,309	$130,309	0.012	$1,603	
Periodic Cost	70	$130,309	$130,309	0.009	$1,143	
Periodic Cost	75	$130,309	$130,309	0.006	$814	
Periodic Cost	80	$130,309	$130,309	0.004	$581	
Periodic Cost	85	$130,309	$130,309	0.003	$414	
Periodic Cost	90	$130,309	$130,309	0.002	$296	
Periodic Cost	95	$130,309	$130,309	0.002	$211	
Periodic Cost	100	$130,309	$130,309	0.001	$150	
Total Periodic Cost		$2,606,179			$323,101	
TOTAL COST		**$11,169,003**			**$2,046,849**	

TOTAL PRESENT VALUE OF ALTERNATIVE **$2,046,849**

Note: Discount rate of 7% consistent with "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 540-R-00-002, OSWER 9355.0-75 (July 2000).

Table E.2.2
Cost Estimate for
Alternative SC-2: Limited Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Task/Item Description	Quantity	Unit Cost	Units	Cost	Comments/Reference
CAPITAL COSTS					
Submittals / Implementation Plans	1	$10,000	l.s.	$10,000	SHA estimate
Contractor Mobilization / Demobilization	1	$30,000	l.s.	$30,000	Estimated as approximately 10% of Capital Costs.
Decommissioning of Existing NTCRA VEE System					
VEE Well Abandonment					
Labor					
Oversight of Well Abandonment	1	$49,500	l.s.	$49,500	Assume 2 people for thirty 10-hour field days. Labor cost based on 660 hours at an average rate of $75/hr.
			Subtotal, Labor	$49,500	
Expenses					
Misc. (e.g. mileage. telephone, reproduction, postage, etc.)	1	$7,425	l.s.	$7,425	Assume 15% of labor cost
			Subtotal, Expenses	$7,425	
Drill Rig and Crew					
Mobilization / Demobilization	2	$288	ea.	$575	Assume two drill rigs (See Note 2)
Sixty days of drilling	60	$1,323	day	$79,350	Approximately 3,000 feet of installed wells. Assume one drill rig can over drill approximately 50 feet of existing well and grout the resulting hole(s) in one day.
Sealing/Grouting Existing Well	3000	$5.64	l.f.	$16,920	Approximately 3,000 feet of installed well. Means: 33 23 1821
			Subtotal, Drill Rig and Crew	$96,845	
			Subtotal, VEE Well Abandonment	$153,770	
Fence Removal					
Remove Chain-link Fence	450	$2.56	l.f.	$1,152	Assumes removal of existing inside chain-link installed in conjunction with VEE system which is located approximately along the boundary of Parcels 1 and 2. Length estimated at approximately 450 feet. Means: 17 02 0225
Remove Piping Distribution Systems					
Remove Plastic Pipe to 6"	3800	$8.25	l.f.	$31,350	Means: 16 01 0625
Remove Plastic Pipe greater than 6"	1200	$9.49	l.f.	$11,385	Means: 16 01 0625 plus 15% assumed.
Transportation and Disposal of Demolished Pipe	5	$70	ton	$350	Assuming demolished pipe is to be disposed at TREE in Rochester, NH and is not suitable as daily cover. No salvage value assumed.
			Subtotal, Remove Piping Distribution Systems	$43,085	
Remove Equipment, Building and Concrete Pads					
Remove/Dispose of VEE system equipment (e.g., blowers, knockout tanks, transfer pumps, heat exchanger, oil water separator, vapor phase carbon units, condenser/separators)	1	$35,000	l.s.	$35,000	Unit cost estimate based on approximately one quarter of direct costs for VEE equipment as indicated in NTCRA Draft Design Report, TtNUS, March 2000.
Small Building Demolition	5280	$0.24	c.f.	$1,267	Assumes two equipment buildings 22 ft. x 12 ft. x 10 ft. high. No salvage value assumed. Means: 020 604 0500
Transportation and Disposal of Building Debris	6	$70	ton	$420	Based on SHA experience with demolition of former older Site building. Assuming debris is to be disposed at TREE in Rochester, NH and is not suitable as daily cover.
Remove Slab on Grade (4" to 6")	2000	$0.67	s.f.	$1,340	Estimated equipment building pad (40 ft. x 50 ft.); Means: 16 01 0124
Load Concrete Debris, 2 c.y. loader	8	$106.57	hr	$853	Assume one loader for one 8-hour day to load a volume of approximately 37 c.y. (2,000 s.f. estimated at 0.5 ft. thick). Fluff factor for 2X assumed for concrete rubble. Means: 17 03 0222
Transportation and Processing of Concrete Demolition Debris	81	$24	ton	$1,954	Assume material will be transported and processed at Commercial Recycling Systems in Scarborough, ME. Pricing included transportation and processing. Assume concrete demolition debris is non-hazardous with wire reinforcement, weighs 2 ton/cy, and 10% weight increase for sand used to cushion truck bodies.
			Subtotal, Remove Equipment, Building and Concrete Pads	$40,833	

Table E.2.2
Cost Estimate for
Alternative SC-2: Limited Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Task/Item Description	Quantity	Unit Cost	Units	Cost	Comments/Reference
Disconnect Electrical Service	1	$3,500	l.s.	$3,500	Unit cost estimate based on approximately one quarter of cost for initial installation of electrical service as indicated in NTCRA Draft Design Report, TtNUS, March 2000.
VEE System Decommissioning Report					
Labor	1	$10,240	l.s.	$10,240	Labor cost based on 128 hours at an average rate of $80/hr.
Expenses	1	$512	l.s.	$512	Assume 5% of report prep. labor
Subtotal, VEE System Decommissioning Report				$10,752	
Subtotal, Decommissioning of Existing NTCRA VEE System				$253,092	
Extend/Repair Site Fencing along Unfenced Boundary / Kelley Brook					
Cut & Chip light, trees to 6" diam	1	$2,925	acre	$2,925	Assume distance of 1510 feet along Kelley Brook by 20 feet wide and will be cleared at the same level of effort as one acre. Means 021 104 0010
Gate for 6' high fence, 1-5/8" frame, 3' wide, galv. steel	4	$247	ea	$988	Assume installation of new gates near stream locations 6, 10, 11, and 15. Means 028 308 1400
Chain link fence, industrial, 6 ga. wire, galv. steel, 3 strands barb wire, 2" posts @ 10' O.C., set in concrete, 6'H	1510	$17.80	l.f.	$26,878	Means 028 308 0500
Top rail, incl tie wires, 1-5/8", galv.	1510	$3.07	l.f.	$4,636	Means 028 308 7010
Rail, middle/bottom, w/tie wire, 1-5/8", galv.	3020	$2.68	l.f.	$8,094	Means 028 308 7040
Subtotal, Extend/Repair Site Fencing				$43,520	
Extend Site Fencing Around Sediment Area					
Cut & Chip light, trees to 6" diam	1	$2,925	acre	$2,925	Assume area to be cleared is 250 feet long by 20 feet wide and can be cleared for the same level of effort as one acre. Means 021 104 0010
Chain link fence, industrial, 6 ga. wire, galv. steel, 3 strands barb wire, 2" posts @ 10' O.C., set in concrete, 6'H	250	$17.80	l.f.	$4,450	Means 028 308 0500
Top rail, incl tie wires, 1-5/8", galv.	250	$3.07	l.f.	$768	Means 028 308 7010
Rail, middle/bottom, w/tie wire, 1-5/8", galv.	500	$2.68	l.f.	$1,340	Means 028 308 7040
Subtotal, Fence Costs (Sediment Area)				$9,483	
Replace Interior Site Fencing Around Landfill and SWRP 2 area					The chain link fence that currently surrounds landfill and SWRP 2 area has been dismantled in several places by various contractors working in the vicinity of the landfill and older Site building. It is assumed that this fence would need to be replaced and that it has an approximate length of 650 feet.
Gate for 6' high fence, 1-5/8" frame, 3' wide, galv. steel	2	$247	ea	$494	Means 028 308 1400
Chain link fence, industrial, 6 ga. wire, galv. steel, 3 strands barb wire, 2" posts @ 10' O.C., set in concrete, 6'H	650	$17.80	l.f.	$11,570	Means 028 308 0500
Top rail, incl tie wires, 1-5/8", galv.	650	$3.07	l.f.	$1,996	Means 028 308 7010
Rail, middle/bottom, w/tie wire, 1-5/8", galv.	1300	$2.68	l.f.	$3,484	Means 028 308 7040
Subtotal, Interior Site Fencing Around Landfill and SWRP2				$17,544	
Post-Decommissioning / Construction Submittals	1	$10,000	l.s.	$10,000	SHA estimate
		Subtotal, Capital Costs		$373,639	
Contingency				$74,728	10% scope + 10% bid (See Note 4)
		Subtotal, Capital Costs & Contingency		$448,366	
Project Management				$44,837	10% (See Note 4)
Construction Management				$67,255	15% (See Note 4)
Institutional Controls					
Establish Deed Restrictions/AURs for Parcels I and II	2	$5,000	ea.	$10,000	Assume 2 properties (Parcel I and II) @ $5,000 per property for establishing the deed restrictions.

Table E.2.2
Cost Estimate for
Alternative SC-2: Limited Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Task/Item Description	Quantity	Unit Cost	Units	Cost	Comments/Reference
Establish Deed Restrictions/AURs for Landfill	1	$10,000	l.s.	$10,000	Assume one property (Landfill area) @ $10,000 for establishing the deed restrictions.
Establish Fishing Restrictions	1	$5,000	ea.	$5,000	
		Subtotal, Institutional Controls		$25,000	
		TOTAL CAPITAL COSTS		**$585,458**	
ANNUAL COSTS					
Quarterly Site Inspections					
Labor					
Quarterly Inspection with Inspection Report (4)	1	$4,950	l.s.	$4,950	Labor cost based on 66 hours at an average rate of $75/hr.
		Subtotal, Labor Costs		$4,950	
Expenses					
Misc. (e.g. mileage. telephone, reproduction, postage, personal protective equipment, etc.)	1	$495	l.s.	$495	Assume 10% of labor cost
		Subtotal, Expenses		$495	
		Subtotal, Quarterly Site Inspections		$5,445	
Maintain/Repair Site Fencing					Assume annual replacement of 10% of total length of 6,440 feet (includes approximately 4,060 feet of existing fence around edge of property, 670 feet of existing interior Site fencing around landfill and approximately 1,710 feet of proposed fence [1,510 feet along Kelley Brook and 200 feet around sediment area]).
Labor					
Observation/Oversight	1	$6,000	l.s.	$6,000	One person for six 10-hour field days to observe fence repair. Labor cost based on 80 hours at an average rate of $75/hr.
		Subtotal, Labor		$6,000	
Expenses					
Misc. (e.g. mileage. telephone, reproduction, postage, personal protective equipment, etc.)	1	$900	l.s.	$900	Assume 15% of labor cost
		Subtotal, Expenses		$900	
Fencing					
Chain link fence, industrial, 6 ga. wire, galv. steel, 3 strands barb wire, 2" posts @ 10' O.C., set in concrete, 6'H	644	$17.80	l.f.	$11,463	Means 028 308 0500
Top rail, incl tie wires, 1-5/8", galv.	644	$3.07	l.f.	$1,977	Means 028 308 7010
Rail, middle/bottom, w/tie wire, 1-5/8", galv.	1288	$2.68	l.f.	$3,452	Means 028 308 7040
		Subtotal, Fence Costs		$16,892	
		Subtotal, Annual Fence Maintenance/Repair		$23,792	
Maintain/Repair Soil Pile Tarpaulins					
Labor					
Observation/Oversight	1	$2,100	l.s.	$2,100	Assume one person for two 10-hour field days. Labor cost based on 28 hours at an average rate of $75/hr.
		Subtotal, Labor		$2,100	
Expenses					
Misc. (e.g. mileage. telephone, reproduction, postage, personal protective equipment, etc.)	1	$315	l.s.	$315	Assume 15% of labor cost
		Subtotal, Expenses		$315	
Tarpaulin Repair/Maintenance					
Misc. Materials and Subcontracted Labor	1	$2,557	l.s.	$2,557	Assume 10% of 5-year cost to remove and install new soil pile tarpaulins.
		Subtotal, Tarpaulin Repair/Maintenance		$2,557	

Table E.2.2
Cost Estimate for
Alternative SC-2: Limited Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Task/Item Description	Quantity	Unit Cost	Units	Cost	Comments/Reference
Subtotal, Maintain/Repair Soil Pile Tarpaulins				$4,972	
Annual Surface Water Monitoring (Round 1 of 1)					
Labor					
Preparation/Mobilization/Break down (e.g., set up schedule, etc.)	1	$640	l.s.	$640	Labor cost based on 8 hours at an average rate of $80/hr.
Sampling of surface water locations.	1	$1,800	l.s.	$1,800	See Note 5. Assume 2 people for one 10-hour field day. Assume collection of approximately 6 samples. Labor cost based on 24 hours at an average rate of $75/hr.
Measure surface water levels at corresponding staff gauges.	1	$0	l.s.	$0	Assume to be completed at same time as sample collection.
		Subtotal, Labor		$2,440	
Expenses					
Misc. (e.g. mileage. telephone, reproduction, postage, personal protective equipment, sampling equipment, etc.)	1	$366	l.s.	$366	Assume 15% of labor cost
		Subtotal, Expenses		$366	
Laboratory Costs					
Laboratory analysis of 1 trip blank for VOCs (8260B)	1	$184.00	ea.	$184	See Note 6.
Laboratory analysis of 6 surface water samples, plus 1 dup. for VOCs (8260B).	7	$184.00	ea.	$1,288	See Note 6.
Laboratory analysis of 6 surface water samples, plus 1 dup. for PAHs by SIM	7	$270.25	ea.	$1,892	See Note 6.
Laboratory analysis of 6 surface water samples, plus 1 dup. for metals (assume 21 metals identified as contaminants of potential concern in Ecological Risk Assessment).	7	$287.50	ea.	$2,013	See Note 7.
		Subtotal, Lab Costs		$5,376	
Subtotal, Annual Surface Water Monitoring (Round 1 of 1)				$8,182	
Annual Wetlands Monitoring (Round 1 of 1)	1	$5,000	l.s.	$5,000	SHA estimate based on experience
Annual Summary Report					
Labor	1	$9,920	l.s.	$9,920	Labor cost based on 124 hours at an average rate of $80/hr.
Expenses	1	$496	l.s.	$496	Assume 5% of report prep. labor
		Subtotal, Annual Summary Report		$10,416	
		Subtotal, Annual Cost		$57,807	
Annual Cost Contingency				$8,671	5% scope + 10% bid (See Note 4)
		Subtotal, Annual Cost with Contingency		$66,478	
Annual Project Management/Administration				$6,648	10% (See Note 4)
Annual Technical Support				$6,648	10% (See Note 4)
		TOTAL ANNUAL COSTS		**$79,774**	
FIVE YEAR ACTIVITIES / REVIEW					
Replace Soil Pile Tarpaulins					
Labor					
Specification Package	1	$3,360	l.s.	$3,360	Labor cost based on 42 hours at an average rate of $80/hr.
Observation/Oversight	1	$5,625	l.s.	$5,625	Assume one person for seven 10-hour field days (five days to remove/replace tarpaulins and one day each for mobilization/ demobilization of roll-offs for disposal of old tarpaulins). Labor cost based on 75 hours at an average rate of $75/hr.
		Subtotal, Labor		$8,985	
Expenses					

Table E.2.2
Cost Estimate for
Alternative SC-2: Limited Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Task/Item Description	Quantity	Unit Cost	Units	Cost	Comments/Reference
Misc. (e.g. mileage. telephone, reproduction, postage, personal protective equipment, sampling equipment, etc.)	1	$1,348	l.s.	$1,348	Assume 15% of labor cost
		Subtotal, Expenses		$1,348	
Remove Old and Install New Soil Pile Tarpaulins					
Labor to Untarp Soil Piles	16	$76.07	hr	$1,217	Assume two 8-hour days. Means: Crew Code-ULABC
Mobilization/Demobilization of Bobcat	1	$150.00	l.s.	$150	Assume $150
Bobcat	40	55.98	hr	$2,239	Assume five 8-hour days remove and install new Soil Pile Tarpaulins. Means: Crew Code-COBBC
Tarpaulin Plastic laminate waste pile cover, 250 lb Tear, 4-5 year life, installed.	6000	$3.66	s.y.	$21,960	Quantity estimated from current pile dimensions. Means: 33 08 0592
Subtotal, Remove Old and Install New Soil Pile Tarpaulins				$25,566	
Disposal of Old Soil Pile Tarpaulins					
Mobilization/Demobilization of roll-offs	2	$440	ea	$880	Assume tandem roll-off mobilization and demobilization. Rain For Rent Price Sheet
25-yd roll-off box with one piece aluminum lid	4	$300	mo	$1,200	Assume rental of 4 roll-offs for 1 month. Rain For Rent Price Sheet
Polyethylene Box Liners	4	$30	ea	$120	Rain For Rent Price Sheet
Chemical analysis for disposal	8	$655.50	ea	$5,244	See Note 6. Assume 2 samples per roll-off. Samples to be analyzed for PCBs, TCLP VOCs, and TCLP RCRA 8 metals. Based on past Site experience. Samples submitted to laboratory for normal turnaround.
Transportation	8	$10	ton	$80	Assume transport from Plaistow NH to TREE in Rochester, NH. Weight of material to be disposed estimated at 8 tons.
Disposal	8	$70	ton	$560	Assume material will be disposed at TREE in Rochester, NH. Weight of material to be disposed estimated at 8 tons.
Subtotal, Disposal of Old Soil Pile Tarpaulins				$8,084	
Replace Soil Pile Tarpaulins				$43,983	
Sediment Monitoring (Round 1of 1)					
Labor					
Preparation/Mobilization/Break down (e.g., set up schedule, etc.)	1	$1,920	l.s.	$1,920	Labor cost based on 24 hours at an average rate of $80/hr.
Sampling of stream sediment locations.	1	$6,375	l.s.	$6,375	See Note 5. Assume 2 people for three 12-hour days. Assume collection of approximately 10 samples. Labor cost based on 85 hours at an average rate of $75/hr.
Measure surface water levels at corresponding staff gauges.	1	$0	l.s.	$0	Assume to be completed at same time as sample collection.
Sampling Round Summary Data Report	1	$6,240	l.s.	$6,240	Labor cost based on 78 hours at an average rate of $80/hr.
		Subtotal, Labor		$14,535	
Expenses					
Misc. (e.g. mileage. telephone, reproduction, postage, personal protective equipment, sampling equipment, etc.)	1	$2,180	l.s.	$2,180	Assume 15% of labor cost
		Subtotal, Expenses		$2,180	
Laboratory Costs					
Laboratory analysis of 1 trip blank for VOCs (8260B)	1	$184.00	ea.	$184	See Note 6.
Laboratory analysis of 10 sediment samples, plus 1 dup. and 1 equipment blank for VOCs (8260B).	12	$184.00	ea.	$2,208	See Note 6.
Laboratory analysis of 10 sediment samples, plus 1 dup. and 1 equipment blank for PAHs by SIM	12	$184.00	ea.	$2,208	See Note 6.
Laboratory analysis of 10 sediment samples, plus 1 dup. and 1 equipment blank for PCBs (8082).	12	$104.00	ea.	$1,248	See Note 6.

Table E.2.2
Cost Estimate for
Alternative SC-2: Limited Action
Feasibility Study
Beede Waste Oil / Cash Energy Site
Plaistow, New Hampshire

Task/Item Description	Quantity	Unit Cost	Units	Cost	Comments/Reference
Laboratory analysis of 10 sediment samples, plus 1 dup. and 1 equipment blank for metals (assume 21 metals identified as contaminants of potential concern in Ecological Risk Assessment).	12	$287.50	ea.	$3,450	See Note 7.
		Subtotal, Lab Costs		$9,298	
	Sediment Monitoring (Round 1 of 1)			$26,013	
Five Year Review Report					
Labor	1	$19,520	l.s.	$19,520	Labor cost based on 244 hours at an average rate of $80/hr.
Expenses	1	$976	l.s.	$976	Assume 5% of report prep. labor
	Subtotal, Five Year Review Report			$20,496	
	Subtotal, Each Five Year Activities / Review Cost			$90,492	
Each Five Year Activities / Review Cost Contingency				$18,098	10%scope + 10%bid (See Note 4)
	Subtotal, Each 5-Year Act/Review with Conting			$108,591	
Each Five Year Activities / Review Cost Project Management/Administration				$10,859	10% (See Note 4)
Each Five Year Activities / Review Cost Technical Support				$10,859	10% (See Note 4)
	TOTAL, EACH FIVE YEAR ACTIVITIES / REVIEW			**$130,309**	

Notes:

1. Average labor rate of $80/hr assumes primarily office-based labor with the following approx. distribution: 2% Principal ($135/hr), 18% Project Manager ($105/hr), 75% Project Engineer ($75/hr), and 5% Support ($45/hr). Average labor rate of $75/hr assumes primarily field labor with the following approx. distribution: 5% Project Manager ($105/hr), 90% Project Engineer ($75/hr), and 5% Support ($45/hr); personnel hours for field tasks include oversight/project management and support time, in addition to time for staff in field.

2. Cost estimate based on SHA's experience with Capital Environmental Drilling, Inc. of Dunbarton, New Hampshire plus 15% markup.

3. "Means" indicates one of the following:
   - RS Means, 1998, Heavy Construction Cost Data, 12th Annual Edition.
   - RS Means, 1998, Site Work & Landscape Cost Data, 17th Annual Edition.
   - RS Means, 1999, Environmental Remediation Cost Data - Assemblies, 5th Annual Edition.
   - RS Means, 1999, Environmental Remediation Cost Data - Unit Price, 5th Annual Edition.
   - RS Means, 2000, Heavy Construction Cost Data, 14th Annual Edition.
   - RS Means, 2000, Site Work & Landscape Cost Data, 19th Annual Edition.

4. Reference: USEPA, "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 540-R-00-002, July 2000.

5. The number and frequency of collection of surface water and sediment samples are based on discussions with NHDES and USEPA. The sampling locations are presumed to generally coincide with a subset of the locations sampled during the Remedial Investigation (RI).

6. Laboratory analytical costs are provided by Eastern Analytical, Inc. (EAI) of Concord, New Hampshire and are based either on an EAI 2000 price sheet or discussions with EAI regarding certain analytical methods (PAHs by SIM). Costs include a 15% markup.

7. Laboratory analytical costs are provided by Woods Hole Group (WHG) Environmental Laboratories of Raynham, Massachusetts and are based on previous analyses for 22 metals (including sample prep / digestion) performed by WHG for post RI analysis of a surface water sample. Costs include a 15% markup.